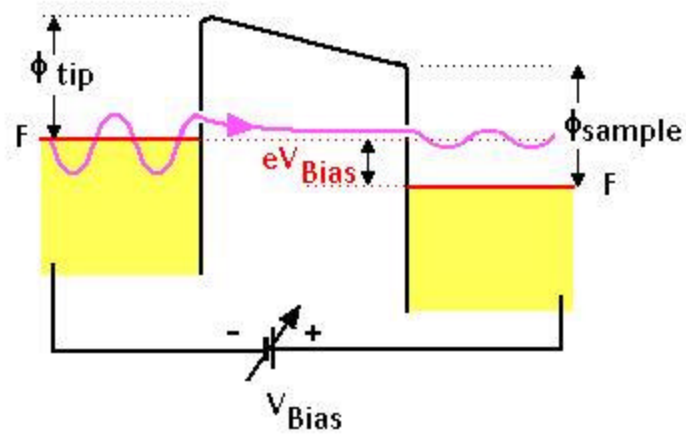
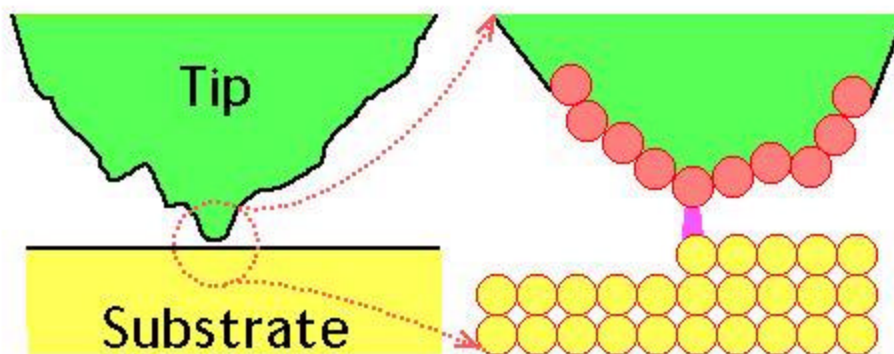


Scanning Tunneling Microscope for UHV environment

- STM system design
- Atomic resolution

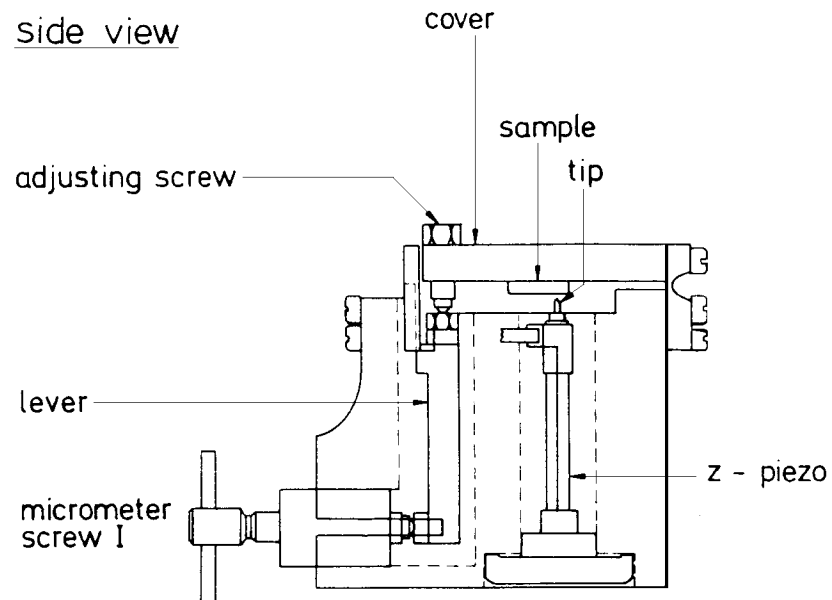


$$I \propto N(E) \cdot e^{-A\sqrt{\phi} \cdot z}$$

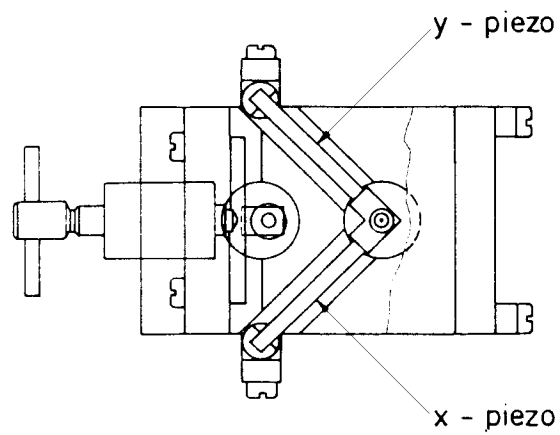


STM Principle and Schematics.

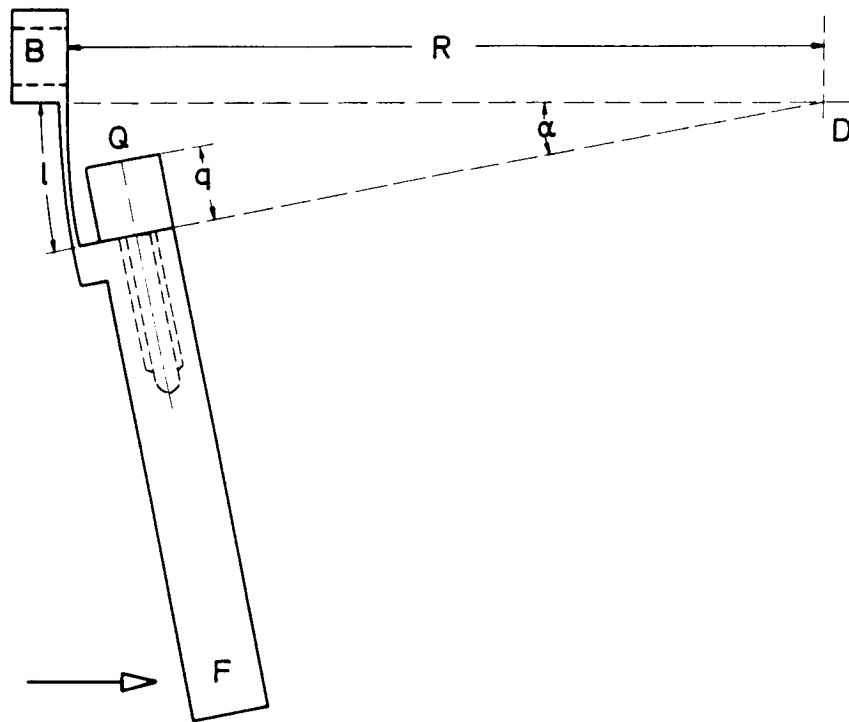
side view



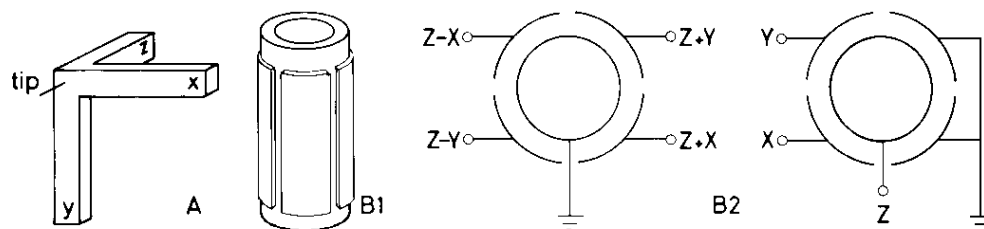
top view



Mechanical Design of the STM Head.

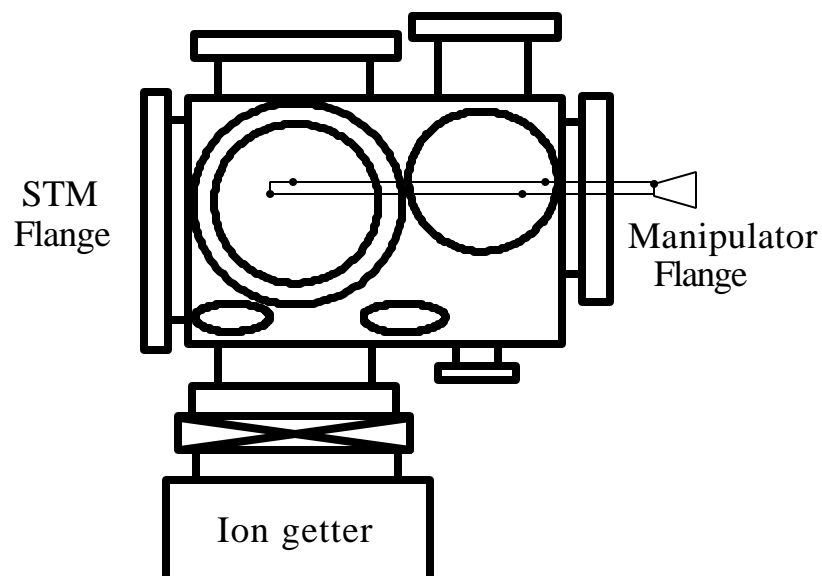


Appropriate Reduction Lever Used to Achieve the Required Resolution for the Sample Holder Approach.



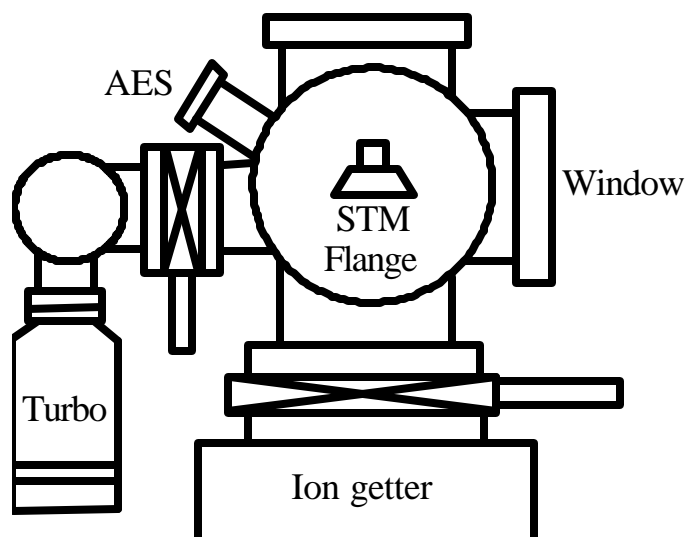
Several Types of STM Scan Units. The Tripod type was Used.

UHV-chamber - side view

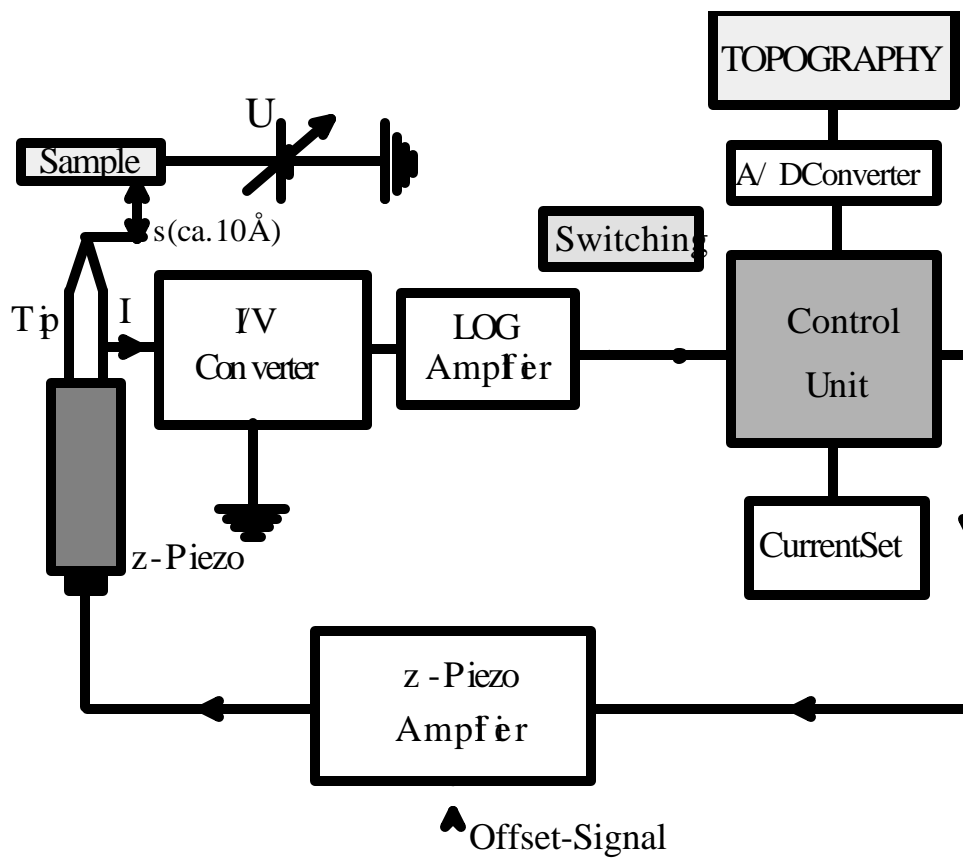


Schematic Drawing of the UHV-STM Chamber.

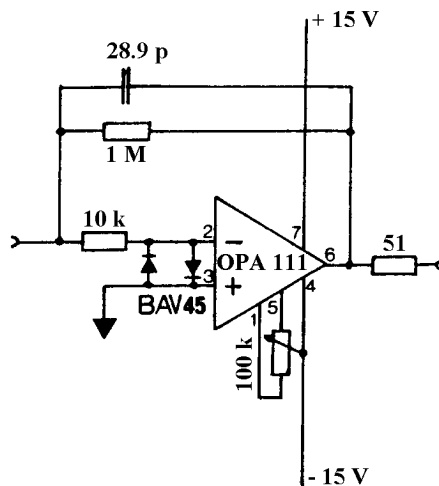
UHV-chamber-frontview



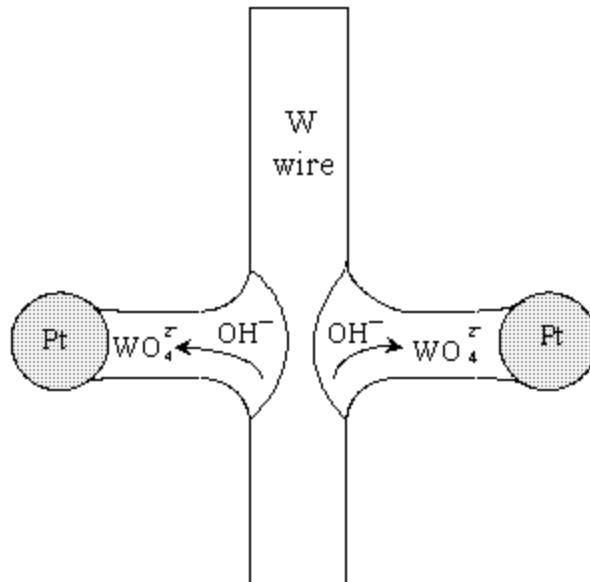
Schematic Drawing of the UHV-STM Chamber.



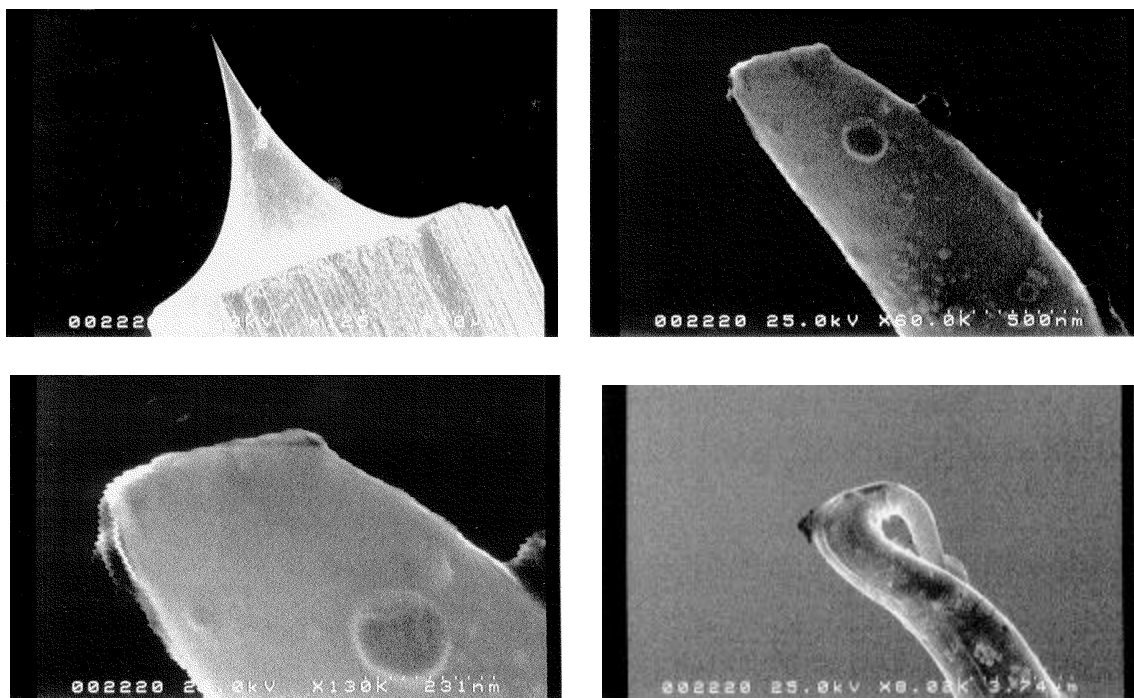
Block Diagram with Electronic Components of the STM Electronics.



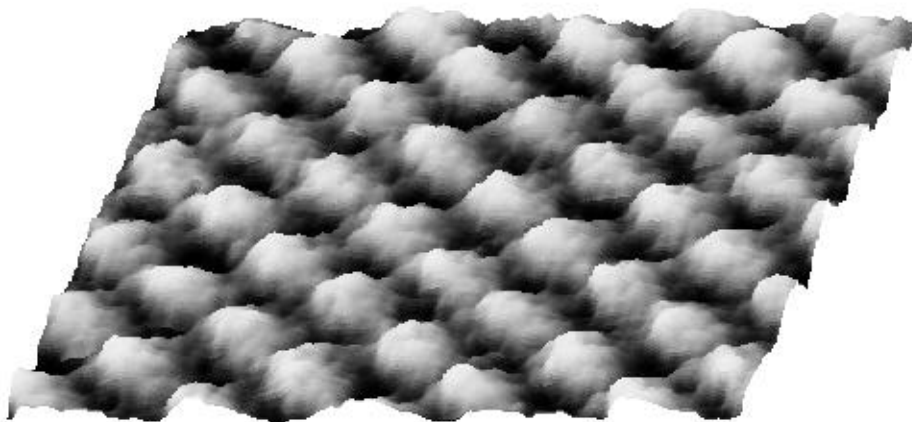
Schematic Circuit of the STM I-V Converter.



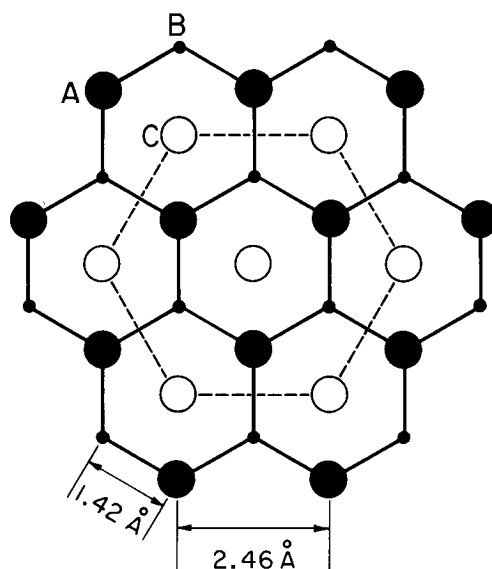
STM Tip Etching: Schematic Diagram of the Electrochemical Arrangement.



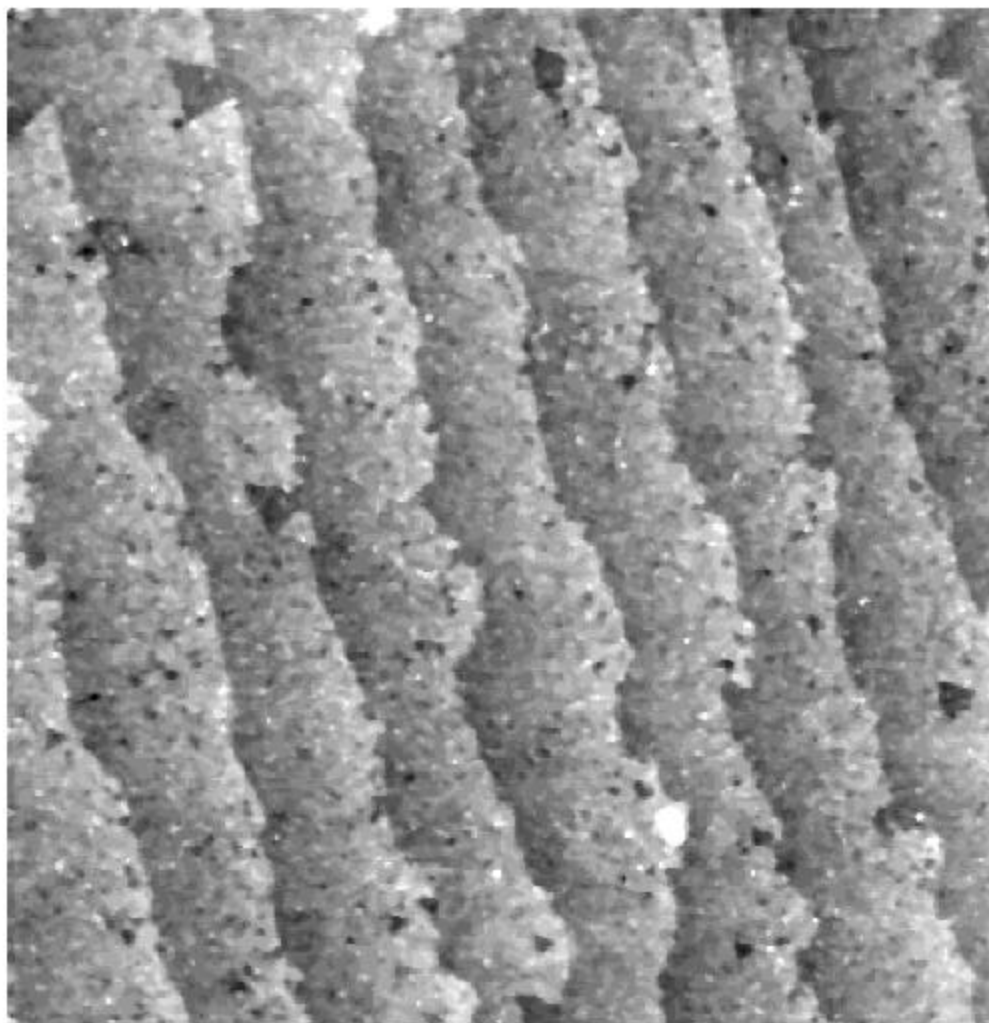
Scanning Electron Micrographs of Etched STM Tips.



STM Results: 3-D STM Image of the Graphite Surface ($18 \text{ \AA} \times 13 \text{ \AA}$)



Surface Structure of Graphite with Alternate Layers Displaced.

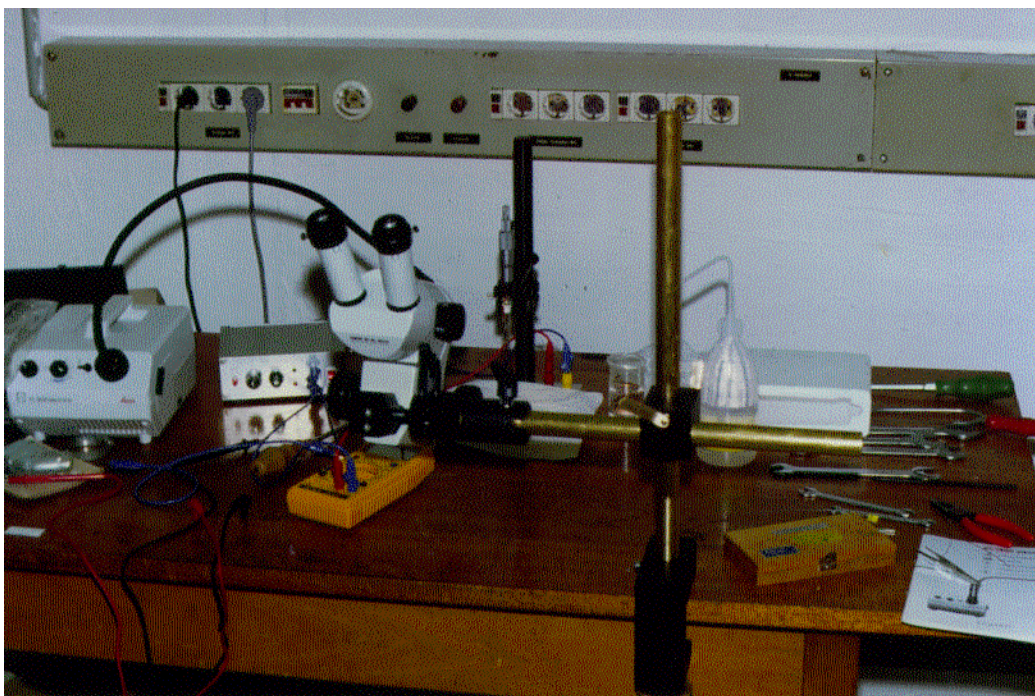


0 250 500 nm

STM Results: Surface Topography of a *p*-type Si(111) Sample.
(3.1 Å Height Monoatomic Steps)



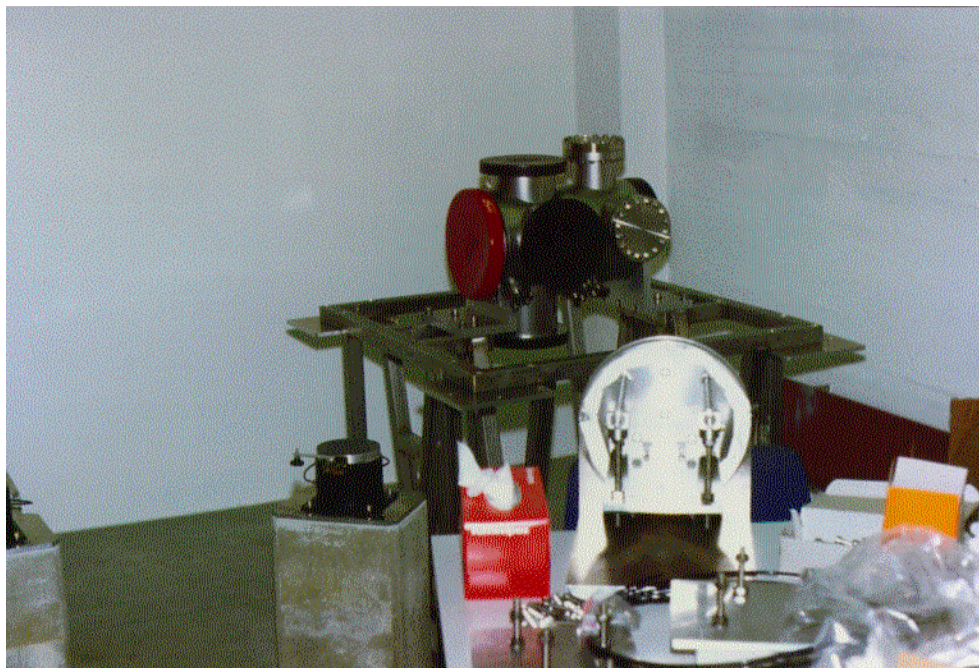
Starting the STM Work from the Walls!



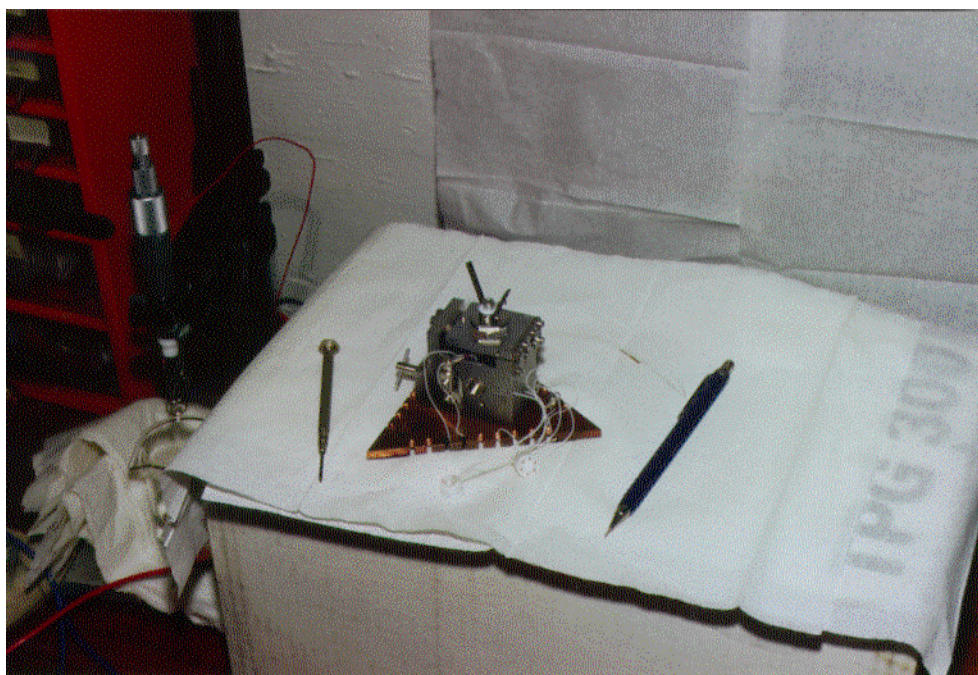
Implemented STM Tip Etching Station



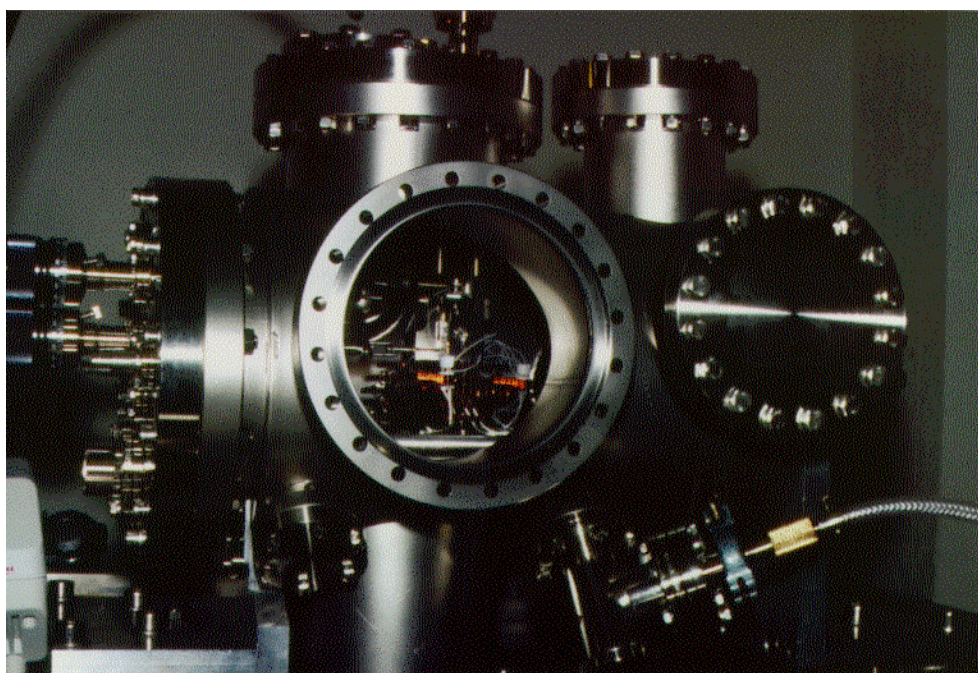
STM Concrete Legs and STM System Table/Frame



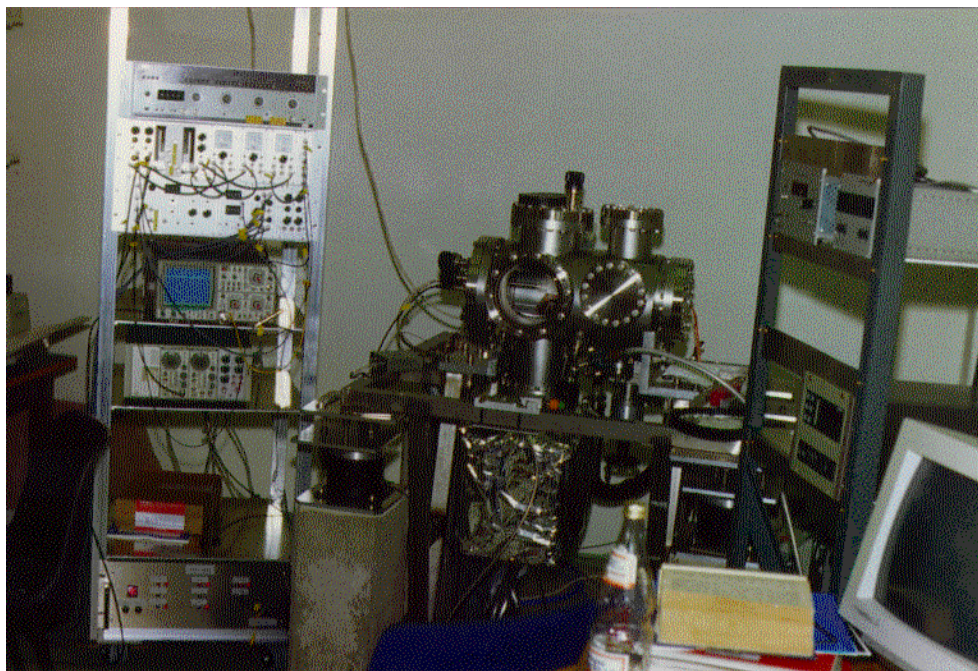
STM Chamber and STM Head Flange.



STM Head out in the Air.



STM Head and STM Chamber Together.



Complete STM System.



Taking First STM Image.